

Pocket Solar System

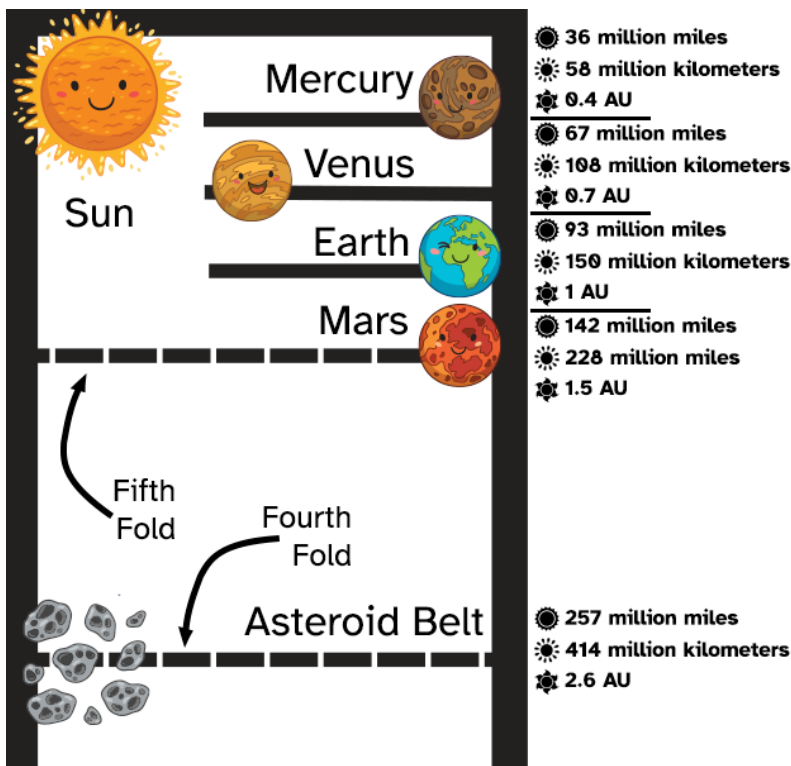
This Quick Facilitation Guide is an adaptation of the [Night Sky Network's Pocket Solar System Activity](#)

Materials

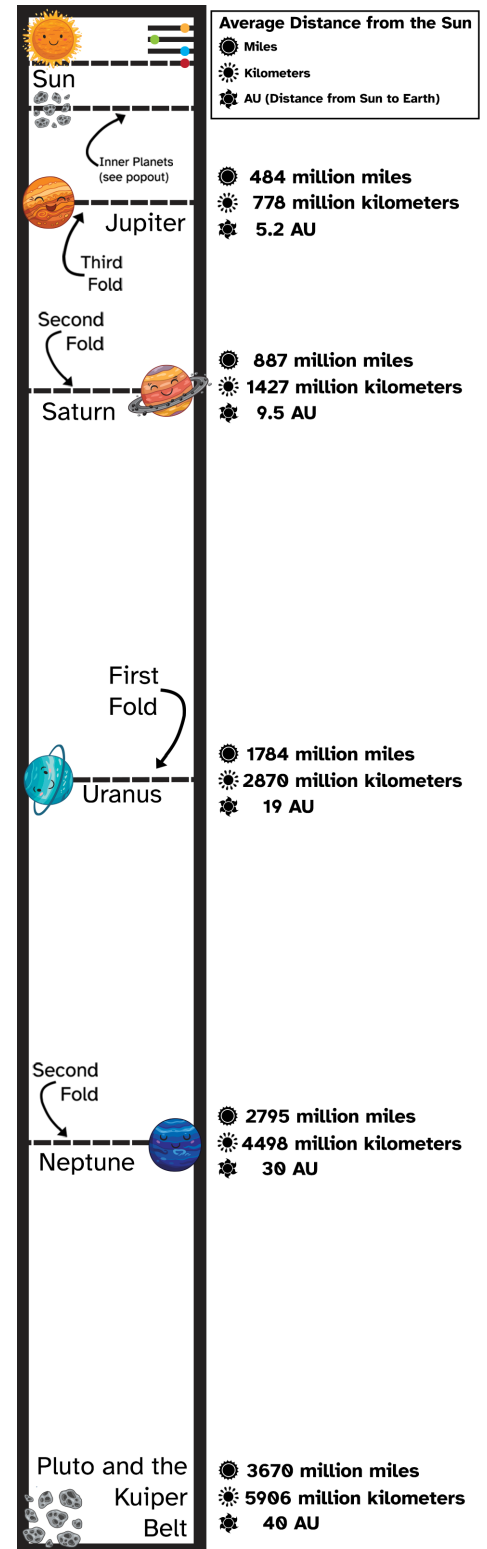
- ★ Register tape (or other long roll of paper – see the extension for more ideas!)
- ★ Pen or pencil
- ★ Small planet cutouts (optional)

Instructions

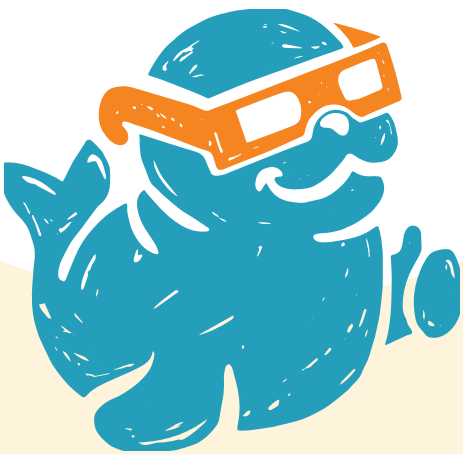
This paper solar system model is all about scale and proportion. By folding a long piece of paper into increasingly smaller sections you can approximate the distance from the sun to planets and other bodies in our own solar system! You can label these distances using a pen or pencil, the (not to scale) planet cutouts included in this activity, or both!



Pocket solar system inner planets



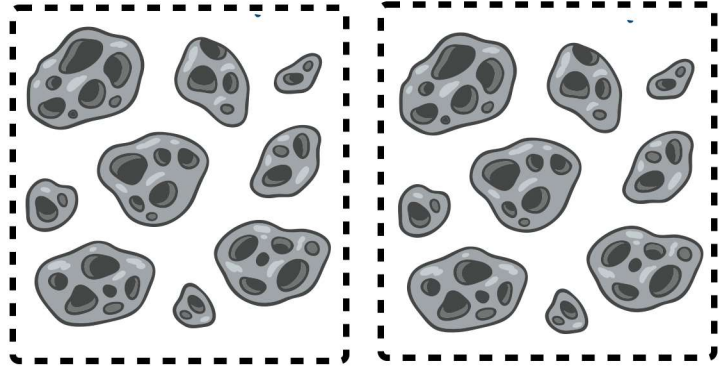
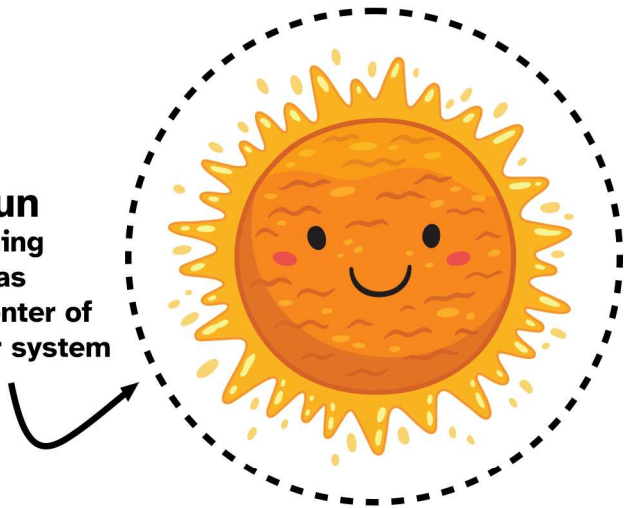
- 1.** Cut the register tape or other long roll of paper to a length of at least three feet. Cutting it to the length of your body from head to foot is a great length for this activity!
- 2.** Label one end of the paper “Sun” and the other “Pluto and the Kuiper Belt.” The rest of this activity will place other objects in the solar system to the approximate scale of the distance between these two points.
- 3.** Fold the “Sun” end of your paper so that it meets the “Pluto” end of your paper, creasing in the middle. This folds your entire length of paper into halves. Label this crease “Uranus.”
- 4.** Refold your paper along the crease you made in the first fold so that the “Sun” and “Pluto” ends meet. Fold the paper so the crease (“Uranus”) meets the “Sun” and “Pluto” ends. Crease this new fold, dividing your paper into quarters. Label these new folds at $\frac{1}{4}$ and $\frac{3}{4}$ of the distance from the Sun to the Kuiper belt as “Saturn” (the fold closer to the Sun) and “Neptune” (the fold closer to Pluto and the Kuiper Belt).
- 5.** Fold the “Sun” end of your paper so that it meets the “Saturn” crease you made in the last step and crease this new fold, creating a new fold that is $\frac{1}{8}$ of the total length of the paper. Label this crease “Jupiter.”
- 6.** Fold the “Sun” end of your paper to the “Jupiter” crease and crease this new fold, creating a new fold that is $\frac{1}{16}$ of the total length of the paper. Label this crease “the Asteroid Belt.”
- 7.** Create the final fold by folding the “Sun” end of your paper to the “Asteroid Belt” crease, creating a new fold that is $\frac{1}{32}$ of the total length of the paper. Label this new crease “Mars.”
- 8.** Your remaining paper between the “Sun” and “Mars” may be too small to create more folds. You can approximate the distance of Mercury, Venus, and Earth from the Sun by drawing a line for Venus halfway between the Sun and Mars, a line halfway between the Sun and Venus for Mercury, and a line halfway between Venus and Mars for Earth.



**You now have a scale model of the Solar System!
Did anything surprise you about the distances
between objects in our Solar System?**

Planet Cutouts (Small Version)

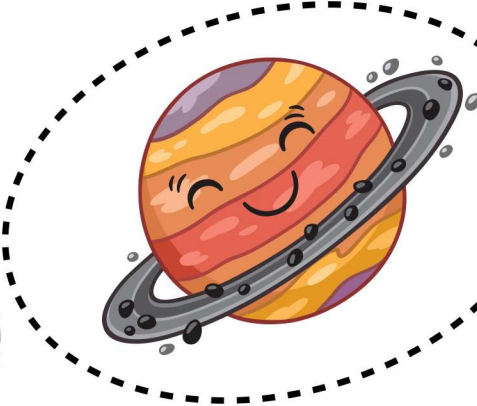
The Sun
The burning ball of gas at the center of our solar system



Asteroid Belts
Our solar system has two rocky asteroid belts, one between Mars and Jupiter and the much larger Kuiper belt beyond the orbit of Neptune



Mercury
The smallest and closest planet to the Sun

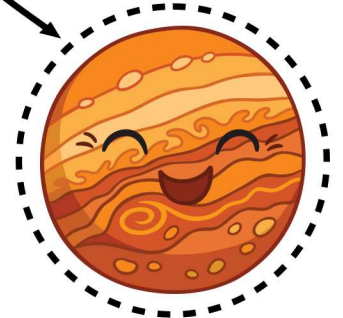


Saturn
Saturn's famous rings consist of bits of rock, ice, and dust

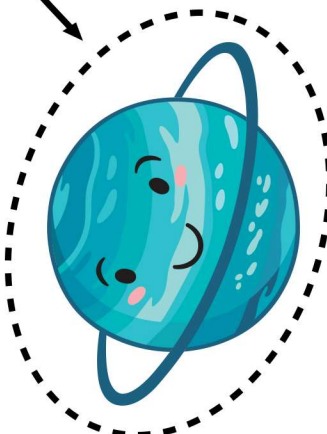
Venus
The second brightest object in Earth's sky after the Moon



Jupiter
The largest planet in our solar system has 67 moons



Uranus
The orbit of Uranus is unique, spinning on its side like a rolling ball



Neptune
Neptune is the smallest of the gas giant planets and has an Earth-like gravity



Earth
Home Sweet Home

Mars
Mars gets its red color from iron oxides on its surface (aka rust)

